

SEQUENCE LISTING

<110> Markham and Bonthron

<120> Wound Healing and Orofacial Clefting

<130> 59367

<140> 09/869,564

<141> 2001-06-29

<150> PCT/GB00/00003

<151> 2000-01-06

<150> GB9900167.9

<151> 1999-01-06

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<170> PatentIn Ver. 2.1

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 Thr Tyr Tyr Ala Asn Val Ser Ala Thr Lys Cys Gln Glu Phe Gly Arg
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 Pro Thr Asn Ser Ser Val Glu Val Ser Pro Asp Ile Tyr Gln Gln Val
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 Arg Asp Glu Leu Lys Arg Ala Ser Val Ser Gln Ala Val Phe Ala Arg
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 Val Ala Phe Asn Arg Thr Gln Gly Leu Leu Ser Glu Ile Leu Arg Lys
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 Glu Glu Asp Pro Arg Thr Ala Ser Gln Ser Leu Leu Val Asn Leu Arg
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 Ala Met Gln Asn Phe Leu Asn Leu Pro Glu Val Glu Arg Asp Arg Ile
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Tyr Gln Asp Glu Arg Glu Arg Ser Met Asn Pro Asn Val Ser Met Val
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 Pro Glu Asn Arg Thr Leu Trp Glu Asn Leu Cys Thr Ile Arg Arg Phe
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 Asp Gln Glu Ala Ile His Thr Leu Ser Ala Gln Leu Asp Leu Pro Lys
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aat gcc tta aag gaa ctg ctc aaa gaa atg aac cag agc aca tta gcc	576
Asn Ala Leu Lys Glu Leu Leu Lys Glu Met Asn Gln Ser Thr Leu Ala	
180 185 190	
aaa gaa tgc cct ctc tcc cag agt atg att tca tcc att gta aat agc	624
Lys Glu Cys Pro Leu Ser Gln Ser Met Ile Ser Ser Ile Val Asn Ser	
195 200 205	
aca tac tat gcc aat gtg tca gca acc aag tgc cag gag ttt ggg aga	672
Thr Tyr Tyr Ala Asn Val Ser Ala Thr Lys Cys Gln Glu Phe Gly Arg	
210 215 220	
tgg tac aaa aag tat aag aag ata aaa gtg gaa aga gtg gag cga gag	720
Trp Tyr Lys Lys Tyr Lys Lys Ile Lys Val Glu Arg Val Glu Arg Glu	
225 230 235 240	
aac ctt tca gac tat tgt gtt ctg ggc cag cgg cca atg cat tta cca	768
Asn Leu Ser Asp Tyr Cys Val Leu Gly Gln Arg Pro Met His Leu Pro	
245 250 255	
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Asn Met Asn Gln Leu Ala Ser Leu Gly Lys Thr Asn Glu Gln Ser Pro	
260 265 270	
cat agc caa atc cac cac agt act cca atc cga aac caa gtg ccc gca	864
His Ser Gln Ile His His Ser Thr Pro Ile Arg Asn Gln Val Pro Ala	
275 280 285	
ctc cag ccc atc atg agc cct ggt ctt ctc tca ccg cag ctc agt cct	912
Leu Gln Pro Ile Met Ser Pro Gly Leu Leu Ser Pro Gln Leu Ser Pro	
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Gln Leu Val Arg Gln Gln Ile Ala Met Ala His Leu Ile Asn Gln Gln	
305 310 315 320	
ata gcc gtt agc cga ctc ctg gct cac cag cat cct caa gcc atc aac	1008
Ile Ala Val Ser Arg Leu Leu Ala His Gln His Pro Gln Ala Ile Asn	
325 330 335	
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Gln Gln Phe Leu Asn His Pro Pro Ile Pro Arg Ala Val Lys Pro Glu	
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Pro Thr Asn Ser Ser Val Glu Val Ser Pro Asp Ile Tyr Gln Gln Val	
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Arg Asp Glu Leu Lys Arg Ala Ser Val Ser Gln Ala Val Phe Ala Arg	
370 375 380	
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Val Ala Phe Asn Arg Thr Gln Gly Leu Leu Ser Glu Ile Leu Arg Lys	
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gaa gaa gat ccc agg act gcg tct cag tct ctt cta gta aac ctg agg	1248
Glu Glu Asp Pro Arg Thr Ala Ser Gln Ser Leu Leu Val Asn Leu Arg	
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gcc atg cag aac ttc ctc aac ctg cct gaa gtg gag cgt gat cgc att	1296
Ala Met Gln Asn Phe Leu Asn Leu Pro Glu Val Glu Arg Asp Arg Ile	
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Tyr Gln Asp Glu Arg Glu Arg Ser Met Asn Pro Asn Val Ser Met Val	
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Ser Ser Ala Ser Ser Ser Pro Ser Ser Ser Arg Thr Pro Gln Ala Lys	
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acc tcg aca ccg aca aca gac ctc cct att aag gtg gac ggc gcc aac	1440
Thr Ser Thr Pro Thr Thr Asp Leu Pro Ile Lys Val Asp Gly Ala Asn	
465 470 475 480	
gtc aac atc aca gct gcc att tat gac gag atc caa cag gag atg aaa	1488
Val Asn Ile Thr Ala Ala Ile Tyr Asp Glu Ile Gln Gln Glu Met Lys	
485 490 495	
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Arg Ala Lys Val Ser Gln Ala Leu Phe Ala Lys Val Ala Ala Asn Lys	
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Ser Gln Gly Trp Leu Cys Glu Leu Leu Arg Trp Lys Glu Asn Pro Ser	
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Pro Glu Asn Arg Thr Leu Trp Glu Asn Leu Cys Thr Ile Arg Arg Phe	
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ctg aat ctt ccc caa cat gag cgg gat gtg atc tat gag gaa gaa tct	1680
Leu Asn Leu Pro Gln His Glu Arg Asp Val Ile Tyr Glu Glu Glu Ser	
545 550 555 560	
cga cat cac cac agt gaa cgc atg cag cat gtg gtc cag ctc cca cct	1728
Arg His His His Ser Glu Arg Met Gln His Val Val Gln Leu Pro Pro	
565 570 575	
gag ccc gtg cag gtc ctt cat cga cag cag tcc cag cca act aag gag	1776
Glu Pro Val Gln Val Leu His Arg Gln Gln Ser Gln Pro Thr Lys Glu	
580 585 590	
agc tcc cct ccc aga gaa gaa gca ccc cca ccg cct cct cca aca gaa	1824

Ser Ser Pro Pro Arg Glu Glu Ala Pro Pro Pro Pro Pro Pro Thr Glu
 595 600 605
 gac agc tgt gcc aaa aag cct cgg tct cgc aca aag atc tct ttg gaa 1872
 Asp Ser Cys Ala Lys Lys Pro Arg Ser Arg Thr Lys Ile Ser Leu Glu
 610 615 620
 gcc ctg ggc atc ctt caa agc ttc atc cat gat gta ggc ctc tat ccc 1920
 Ala Leu Gly Ile Leu Gln Ser Phe Ile His Asp Val Gly Leu Tyr Pro
 625 630 635 640
 gac cag gaa gcc atc cac aca ctc tcc gcc cag ctg gat ctc ccc aaa 1968
 Asp Gln Glu Ala Ile His Thr Leu Ser Ala Gln Leu Asp Leu Pro Lys
 645 650 655
 cac acc atc atc aag ttc ttc cag aac cag agg tac cac gtg aag cac 2016
 His Thr Ile Ile Lys Phe Phe Gln Asn Gln Arg Tyr His Val Lys His
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 cac ggg aag ctg aaa gag cac ctg ggc tcc gcg gtg gac gtg gct gaa 2064
 His Gly Lys Leu Lys Glu His Leu Gly Ser Ala Val Asp Val Ala Glu
 675 680 685
 tat aag gac gag gag ctg ctg acc gag tca gag gag aac gac agc gag 2112
 Tyr Lys Asp Glu Glu Leu Leu Thr Glu Ser Glu Glu Asn Asp Ser Glu
 690 695 700
 gaa ggc tcc gag gag atg tac aaa gtg gag gct gag gag gaa aat gct 2160
 Glu Gly Ser Glu Glu Met Tyr Lys Val Glu Ala Glu Glu Glu Asn Ala
 705 710 715 720
 gac aaa agc aag gca gca cct gcc gaa att gac cag aga taa 2202
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 35 40 45

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His	Ala	Glu	Phe	Val	Leu	Val	Arg	Lys	Asp	Val	Leu	Phe	Ser	Gln	Leu
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Val	Glu	Thr	Ala	Leu	Leu	Ala	Leu	Gly	Tyr	Ser	His	Ser	Ser	Ala	Ala
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Gln	Ala	Gln	Gly	Ile	Ile	Lys	Leu	Gly	Arg	Trp	Asn	Pro	Leu	Pro	Leu
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Ser	Tyr	Val	Thr	Asp	Ala	Pro	Asp	Ala	Thr	Val	Ala	Asp	Met	Leu	Gln
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Asp	Val	Tyr	His	Val	Val	Thr	Leu	Lys	Ile	Gln	Leu	Gln	Ser	Cys	Ser
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Lys	Leu	Glu	Asp	Leu	Pro	Ala	Glu	Gln	Trp	Asn	His	Ala	Thr	Val	Arg
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Lys	Glu	Cys	Pro	Leu	Ser	Gln	Ser	Met	Ile	Ser	Ser	Ile	Val	Asn	Ser
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225						230					235				240
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Pro	Thr	Asn	Ser	Ser	Val	Glu	Val	Ser	Pro	Asp	Ile	Tyr	Gln	Gln	Val

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Glu Glu Asp Pro Arg Thr	Ala Ser Gln Ser Leu	Leu Val Asn Leu Arg		
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Ala Met Gln Asn Phe Leu	Asn Leu Pro Glu Val	Glu Arg Asp Arg Ile		
	420	425	430	
Tyr Gln Asp Glu Arg Glu	Arg Ser Met Asn Pro	Asn Val Ser Met Val		
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Thr Ser Thr Pro Thr Thr	Asp Leu Pro Ile Lys	Val Asp Gly Ala Asn		
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Val Asn Ile Thr Ala Ala	Ile Tyr Asp Glu Ile	Gln Gln Glu Met Lys		
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Ser Gln Gly Trp Leu Cys	Glu Leu Leu Arg Trp	Lys Glu Asn Pro Ser		
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Arg His His His Ser Glu	Arg Met Gln His Val	Val Val Gln Leu Pro	Pro	
	565	570	575	
Glu Pro Val Gln Val Leu	His Arg Gln Gln Ser	Gln Pro Thr Lys Glu		
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Ser Ser Pro Pro Arg Glu	Glu Ala Pro Pro Pro	Pro Pro Thr Glu		
	595	600	605	
Asp Ser Cys Ala Lys Lys	Pro Arg Ser Arg Thr	Lys Ile Ser Leu Glu		
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Ala Leu Gly Ile Leu Gln	Ser Phe Ile His Asp	Val Gly Leu Tyr Pro		
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Asp Gln Glu Ala Ile His	Thr Leu Ser Ala Gln	Leu Asp Leu Pro Lys		
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His Thr Ile Ile Lys Phe	Phe Gln Asn Gln Arg	Tyr His Val Lys His		

660

665

670

His Gly Lys Leu Lys Glu His Leu Gly Ser Ala Val Asp Val Ala Glu
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Tyr Lys Asp Glu Glu Leu Leu Thr Glu Ser Glu Glu Asn Asp Ser Glu
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 Arg Ser Gly Ser Pro Asp Val Lys Gly Pro Pro Pro Val Lys Val Ala
 20 25 30

cgg ctg gag cag aac ggc agc ccc atg gga gcc cgc ggg agg ccc aac 144
 Arg Leu Glu Gln Asn Gly Ser Pro Met Gly Ala Arg Gly Arg Pro Asn
 35 40 45

ggc gcc gtg gcc aag gcc gtg gga ggt ttg atg att cct gtc ttt tgt 192
 Gly Ala Val Ala Lys Ala Val Gly Gly Leu Met Ile Pro Val Phe Cys
 50 55 60

gtc gtg gag cag ttg gac ggc tct ctt gaa tat gac aac aga gaa gaa 240
 Val Val Glu Gln Leu Asp Gly Ser Leu Glu Tyr Asp Asn Arg Glu Glu
 65 70 75 80

cac gcc gag ttt gtc ctg gtg cgg aaa gat gtg ctt ttt agc cag ctg 288
 His Ala Glu Phe Val Leu Val Arg Lys Asp Val Leu Phe Ser Gln Leu

85										90					95					
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Ser	Tyr	Val	Thr	Asp	Ala	Pro	Asp	Ala	Thr	Val	Ala	Asp	Met	Leu	Gln					
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Lys	Leu	Glu	Asp	Leu	Pro	Ala	Glu	Gln	Trp	Asn	His	Ala	Thr	Val	Arg					
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aat	gcc	tta	aag	gaa	ctg	ctc	aaa	gag	atg	aac	cag	agc	aca	tta	gcc	576				
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Lys	Glu	Cys	Pro	Leu	Ser	Gln	Ser	Met	Ile	Ser	Ser	Ile	Val	Asn	Ser					
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Asn	Leu	Ser	Asp	Tyr	Cys	Val	Leu	Gly	Gln	Arg	Pro	Met	His	Leu	Pro					
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aat	atg	aac	cag	ctg	gca	tcc	ctg	ggg	aaa	acc	aac	gaa	cag	tct	cct	816				
Asn	Met	Asn	Gln	Leu	Ala	Ser	Leu	Gly	Lys	Thr	Asn	Glu	Gln	Ser	Pro					
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His	Ser	Gln	Ile	His	His	Ser	Thr	Pro	Ile	Arg	Asn	Gln	Val	Pro	Ala					
		275					280					285								
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Leu	Gln	Pro	Ile	Met	Ser	Pro	Gly	Leu	Leu	Ser	Pro	Gln	Leu	Ser	Pro					
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caa	ctt	gta	agg	caa	caa	ata	gcc	atg	gcc	cat	ctg	ata	aac	caa	cag	960				
Gln	Leu	Val	Arg	Gln	Gln	Ile	Ala	Met	Ala	His	Leu	Ile	Asn	Gln	Gln					
305					310					315				320						

att gcc gtt agc cgg ctc ctg gct cac cag cat cct caa gcc atc aac	1008
Ile Ala Val Ser Arg Leu Leu Ala His Gln His Pro Gln Ala Ile Asn	
325 330 335	
cag cag ttc ctg aac cat cca ccc atc ccc aga gca gtt aag cca gag	1056
Gln Gln Phe Leu Asn His Pro Pro Ile Pro Arg Ala Val Lys Pro Glu	
340 345 350	
cca acc aac tct tcc gtg gaa gtc tct cca gat atc tac cag caa gtc	1104
Pro Thr Asn Ser Ser Val Glu Val Ser Pro Asp Ile Tyr Gln Gln Val	
355 360 365	
aga gat gag ctg aag agg gcc agt gtg tcc caa gct gtc ttt gca aga	1152
Arg Asp Glu Leu Lys Arg Ala Ser Val Ser Gln Ala Val Phe Ala Arg	
370 375 380	
gtg gca ttc aac cgc aca cag gga ttg ttg tct gag att ctg cgt aag	1200
Val Ala Phe Asn Arg Thr Gln Gly Leu Leu Ser Glu Ile Leu Arg Lys	
385 390 395 400	
gaa gaa gac cct cgg aca gcc tct cag tct ctt cta gta aac ctg agg	1248
Glu Glu Asp Pro Arg Thr Ala Ser Gln Ser Leu Leu Val Asn Leu Arg	
405 410 415	
gcc atg cag aat ttc ctc aat ctg cca gaa gtg gag cga gat cgc atc	1296
Ala Met Gln Asn Phe Leu Asn Leu Pro Glu Val Glu Arg Asp Arg Ile	
420 425 430	
tac cag gat gag agg gag cgg agc atg aat ccc aat gtg agc atg gtc	1344
Tyr Gln Asp Glu Arg Glu Arg Ser Met Asn Pro Asn Val Ser Met Val	
435 440 445	
tcc tcg gcc tcc agc agt ccc agc tcc tcc cga acc cct cag gcc aaa	1392
Ser Ser Ala Ser Ser Ser Pro Ser Ser Ser Arg Thr Pro Gln Ala Lys	
450 455 460	
acc tcg aca ccg aca aca gac ctc cct att aag gtg gac ggc gcc aac	1440
Thr Ser Thr Pro Thr Thr Asp Leu Pro Ile Lys Val Asp Gly Ala Asn	
465 470 475 480	
atc aac atc aca gct gcc att tat gac gag atc caa cag gag atg aaa	1488
Ile Asn Ile Thr Ala Ala Ile Tyr Asp Glu Ile Gln Gln Glu Met Lys	
485 490 495	
agg gcc aag gtg tct caa gcc ctg ttt gcc aaa gtg gct gca aat aaa	1536
Arg Ala Lys Val Ser Gln Ala Leu Phe Ala Lys Val Ala Ala Asn Lys	
500 505 510	
agt cag ggc tgg ctg tgt gaa ctg ctc cgc tgg aag gag aac cca agc	1584
Ser Gln Gly Trp Leu Cys Glu Leu Leu Arg Trp Lys Glu Asn Pro Ser	
515 520 525	
cca gaa aac cgc acc ctc tgg gaa aac ctc tgt acc atc cgt cgc ttc	1632
Pro Glu Asn Arg Thr Leu Trp Glu Asn Leu Cys Thr Ile Arg Arg Phe	
530 535 540	

ctg aac ctt ccc cag cat gag agg gat gtc atc tat gag gag gag tca	1680
Leu Asn Leu Pro Gln His Glu Arg Asp Val Ile Tyr Glu Glu Glu Ser	
545 550 555 560	
agg cat cac cac agc gaa cgc atg caa cac gtg gtc cag ctt ccc cct	1728
Arg His His His Ser Glu Arg Met Gln His Val Val Gln Leu Pro Pro	
565 570 575	
gag ccg gtg cag gta ctt cat aga cag cag tct cag cca gcc aag gag	1776
Glu Pro Val Gln Val Leu His Arg Gln Gln Ser Gln Pro Ala Lys Glu	
580 585 590	
agt tcc cct ccc aga gaa gaa gcg cct ccc cca cct cct ccg act gaa	1824
Ser Ser Pro Pro Arg Glu Glu Ala Pro Pro Pro Pro Pro Pro Thr Glu	
595 600 605	
gac agt tgt gcc aaa aag ccc cgg tct cgc aca aag atc tcc tta gaa	1872
Asp Ser Cys Ala Lys Lys Pro Arg Ser Arg Thr Lys Ile Ser Leu Glu	
610 615 620	
gcc ctg ggg atc ctc caa agc ttt att cat gat gta ggc ctg tac cca	1920
Ala Leu Gly Ile Leu Gln Ser Phe Ile His Asp Val Gly Leu Tyr Pro	
625 630 635 640	
gac cag gaa gcc atc cac act ctt tcg gct cag ctg gat ctc ccc aaa	1968
Asp Gln Glu Ala Ile His Thr Leu Ser Ala Gln Leu Asp Leu Pro Lys	
645 650 655	
cac acc atc atc aag ttc ttc cag aac cag cgg tac cac gtg aag cac	2016
His Thr Ile Ile Lys Phe Phe Gln Asn Gln Arg Tyr His Val Lys His	
660 665 670	
cac ggg aag ctg aaa gag cac ctg ggc tcc gcg gtg gac gtg gct gaa	2064
His Gly Lys Leu Lys Glu His Leu Gly Ser Ala Val Asp Val Ala Glu	
675 680 685	
tat aag gac gag gag ctg ctg acc gag tca gag gag aac gac agc gag	2112
Tyr Lys Asp Glu Glu Leu Leu Thr Glu Ser Glu Glu Asn Asp Ser Glu	
690 695 700	
gaa ggc tcc gag gag atg tac aaa gtg gag gct gag gag gaa aat gct	2160
Glu Gly Ser Glu Glu Met Tyr Lys Val Glu Ala Glu Glu Glu Asn Ala	
705 710 715 720	
gac aaa agc aag gca gca cct gcc gaa att gac cag aga	2199
Asp Lys Ser Lys Ala Ala Pro Ala Glu Ile Asp Gln Arg	
725 730	